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## THE COSTS AND BENEFITS OF EDUCATION – A BRIEF REVIEW

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**ȚĂRAN-MOROȘAN Adrian**

*Lucian Blaga University of Sibiu, Romania*

**SAVA Raluca**

*Lucian Blaga University of Sibiu, Romania*

**DIACONESCU Claudia**

*Lucian Blaga University of Sibiu, Romania*

**Abstract:**

*Information on the profitability of investment in the educational system of Romania is now almost inexistent, so the assertion that education is, at least in words, a national priority, which, exploited, can generate sustainable economic growth and social welfare, is not founded now on any economic data. Next we perform an analysis of the current global research findings in the field, emphasizing, where necessary, the problems remained unsolved.*

**Keywords:** *costs of education, benefits of education, the efficiency of the investment in education*

In addition to obvious moral arguments supporting the investment in education there are strong **economic fundamentals which support the individual's right to education**. Economic theory deals with the time a person spends to be educated as an investment in future productivity and, implicitly, in its potential to win. The basis of this theory, known **as the Human Capital Theory**, was released by T. W. Schultz (1961) and G. S. Becker (1964). Although the theory as originally issued was examined and some of its parts have been changed, the general idea remains the same, namely that **the individual treats education as an investment and is willing to educate if he will get superior effects of the efforts made**. People are willing to invest into their developing knowledge capital and skills if they believe that after completion of studies they will get additional benefits higher than the costs of investments.

As with any other investment, as we go forward, it shows up that there are a number of effects and efforts that people generally take into consideration when deciding whether or not they should immobilize their availability of funds to invest in education. From a financial standpoint the decision shall take into account the

additional earnings that future studies will generate. If they are higher than the costs of studies, investment in education is, at a first glance, a viable choice.

**Education costs** in general include both the **actual expenses and the opportunity costs** achieved by the person who made the investment in education, or in other words, income which he gave up during the life devoted to education. **Actual expenditures resulting from the investment in education** are easy to determine and include, besides many others, tuition fees, books, travel expenses incurred for education. These are supported by the individual who benefits from the monetary effects of education, and **their amount forms the individual costs of education**.

Individual benefits of investment in education are the easiest to be quantified in the form of additional income obtained during the life of the person who invested in education. The detailed way for the determination of these benefits requires the calculation of differences between average earnings of individuals with a higher level of education and average earnings of those with a lower level of education, earned over their average life expectancy. A correct calculation takes into account the influences of other factors, besides education, on the earnings obtained by individuals and removes the effects of these influences from the benefits obtained as a result of applying the method described before, using specific statistical tools for this purpose.

Besides education costs and benefits entailed for the individual, the actual theory determines also **the costs and benefits brought to the society**. For example, the costs of education for a certain number of people from many countries including Romania are partly supported by the society through **the subsidiarization from the state budget of the studies followed by those people**. **The total cost** of education of a person comprise both **the costs supported by the individual but also the social costs** paid by the society for him. In other words, it includes all the amounts paid for an individual to become educated, regardless of the person or persons who pay these costs.

Similarly, **total economic benefits of investment involved** in the education of the individual resume **the total individual benefits of the person who is educated**. It also resumes **the social benefits** arising from the interaction between educated individuals. According to B. Wolfe and S. Zuvekas (1997) long-term investment in education may be associated with these social benefits:

- more charity;
- reduced dependence on social assistance programs;
- reduced criminality process;
- increased capacity to save money;
- positive effects on individuals in future generations, whereas in most cases, an increase in the level of education of a generation determine higher expectations from the future generations related to their education (see also E. C. Dunn, 2007);
- more rapid changes in technology development due to increased investment in research and development;
- growth of population health status and average life expectancy of individuals, etc.

All these benefits help to increase the welfare of the country. **Even if some of the population does not invest in their education, social benefits of investment in education it is felt also by it.** From this perspective, **state institutions**, as institutional investors in education, take, or should consider when determining whether to increase, maintaining, or reducing the amounts for investments in education, **the ratio of the total economic benefits and the economic costs of them.**

One of the reasons why in some countries including Romania education is subsidized, and perhaps the most important of these reasons, is that society benefits from the social effects of investment in education. Public investment in education follows precisely the achievement that the level of training of the population determines the appearance of a **maximum difference between the social benefit generated and the efforts made to obtain them.** A good example that reflects the difference between the way the individual and his family and the society think about the investment in education is the example of the student who has completed high school and thinking of becoming a college student. Supposing a high school graduate wants to become a doctor, he will take into account **expenses that will incur during college supported by him and his family in this period.** He will also include the costs generated by the fact that he will not have time to work, so he will put in balance these facts with **additional earnings estimates that he will get after obtaining a job when he finished the college.** If these gains are lower than the costs of the studies he wishes to make, the student will refocus and maybe he will give up studying. But the society **would achieve a lot** if that person graduated the Faculty of Medicine and, after working in the field, will discover, for example, a drug that would be used to treat an incurable disease. This is the reason why **the state institutions are interested to take part of the individual costs and turn them into social costs**, if these costs do not exceed the social benefits that will result from the costs that were incurred.

In the comparison to the costs and economic benefits of education, **the social costs** (part of the economic costs) are generally **easier to be measured than the social benefits**, because their determination involves, in general, just setting the volume of public expenditure incurred for education. It is however, more difficult to assign a monetary value of social benefits resulting from investment in education. For this reason, many studies trying to compare the economic costs and benefits of education, actually compare the economic costs with the individual benefits, ignoring the social benefits. Although this **method underestimates the benefits of education**, in the most studies made up to present, **education benefits exceed costs of investment in this area** (G. Psacharopoulos, 1999; G. Psacharopoulos and H. A. Patrinos, 2002). There is a limited number of researches that have been able to identify positive externalities of investment in education and to evaluate them, but their results are often very different and in some cases, ambiguous (see also R. H. Haveman and B. Wolfe, 1984; R. Venniker, 2001).

One of the indicators used frequently to reflect the efficiency of investment in education is the **rate of return**, which can be determined **both at individual and social level.** Rates of return on investment are similar to money rates for savings

accounts, and are also, in fact, rates of return. If the person who invests in education receives as a result of the investment, amounts higher than those invested, we say that the rate of return on the investment in education is positive, and in the reverse situation, we say that it takes negative values. An investment rate of return is a very useful indicator because it **expresses** through a single digit, **the efficiency of that investment**. A positive rate of return on an investment does not require, however, making that investment. **In terms of limited resources**, the investor will choose only the best or most profitable investments, so he will choose only those **investments with the highest rates of return**.

There **are two methods**, in the specialized literature, for determining the rates of return on investment in education (see also G. Psacharopoulos, 1994). The first method, known as **the full method** (or full-discounting), involves grouping individuals by age and average income taking into consideration the levels of their studies. The costs and benefits underlying the calculation of the cost associated with a higher level of education are measured by difference from the immediately level below. In case of using the second method, known **as the mincerian method** (named after the creator's name, J. Mincer), or **the earnings function method**, the rates of return derive from the difference between the earnings of people who are similar in statistical terms, except the graduated studies. The method used is often determined by the data to which the researcher has access. The mincerian method has the advantage of a lower volume of required data, while the full method uses a larger volume of data, but the results are more accurate. So there are **differences** due to the method used, but experience shows that often, they are not significant.

Both the recent researches and the oldest ones have identified **the existence of an inverse correlation between rates of return and the level of economic development** of a country in the sense that the higher the development level is, the lower are the rates of return on investment in education. The highest rates of return on investment in education are now found in countries from Latin America, the Caribbean, and the sub-Saharan Africa. Asian countries reach close values to the world average and the OECD member countries have lower rates of return to investment in education (G. Psacharopoulos and H. A. Patrinos, 2002). This inverse relationship between the level of economic development and the default size of investments in education and the rates of return of these investments can be explained by **the general law of demand and supply**, namely the fact that the larger the supply of more educated people is, the lower are the benefits of schooling (in relative sizes, of course, because in absolute values the situation is totally different).

**Opponents of comparative studies** on internal rates of return raised in time a number of reasons which have led them to claim that **the study results are often very far from reality**. Although the reasons given in the specialized literature are various (see P. Bennell, 1996), two of them undoubtedly support the conclusion that sometimes the rates of return determined for different countries can not be compared, namely: primary data source used and so, as I mentioned above, the calculation methodology used. To eliminate some of the shortcomings mentioned, there are

studies considered among the most reliable in the field, that have proposed the objective of the determination of rates of return on investment in education processing only data of a statistical population consisting entirely of twins with different levels of education (O. Ashenfelter and A. B. Krueger 1994; O. Ashenfelter and C. E. Rouse 1998; P. Miller, C. Mulvey and N. Martin 1995; C. E. Rouse 1999; J. R. Behrman and M. R. Rosenzweig 1999).

Research conducted until now have shown that education generates higher productivity and superior income and can be an important reason to increase macroeconomic performance of a country. So both older studies (see also T. W. Schultz, 1961; G. S. Becker, 1964) and many of the recent research (see also N. G. Mankiw, D. Romer, and D. M. Weil, 1992; D. J. Henderson and R. R. Russell, 2005) identify among the major causes of the productivity growth the accumulation of physical and human capital. **Investments in education** can, therefore, generate higher rates of **economic growth and increased domestic product per inhabitant**, while the lack of attention given to education can influence macroeconomic indicators in the opposite way. A large number of studies that have been made since the second half of the last century, concluded that frequent changes in production processes lead to changes in demand for various types of work (R. R. Nelson and E. S. Phelps, 1966; Z. Griliches, 1969; F. Welch, 1970; T. W. Schultz, 1975; M. J. Lindquist, 2005; N. Winchester and D. Greenaway, 2007). From these studies arises the idea that **education is more productive the more volatile the technology evolution is**.

History of East Asian and Latin America's countries emphasizes the effects of attention and **lack of attention to education experienced by those countries**. Beginning in late sixties and early seventies of the last century, some East Asian countries have outlined a development strategy based on the investment in education. Relatively recent studies (J. S. Zhang, Y. H. Zhao, A. Park et al., 2005; S. Appleton, L. N. Song and Q. J. Xia, 2005) show **fulminating increased rates** of return on investment in education in urban China in the end of the last century and explain the reasons for this growth. At the **macroeconomic level** this investment was reflected by higher rates of **economic growth and increasing gross domestic product per inhabitant**. Effects of investments in education were not limited only to those mentioned. Higher rates of economic growth have attracted **more investment** in the area that have generated higher revenues for the budgets of these countries, which allowed, in return, higher investment in education and increasing equal opportunities in education (N. Birdsall, D. Ross, and R. Sabot, 1997). **A volute of the effects of investment in education** was generated this way. In Latin America the relatively low economic growth rates were connected by some researchers (N. Birdsall and J. L. Londono, 1998), with **the limited and unequal access to education for various social categories**. Public policy in this part of the world have encouraged **major investments in physical capital to the detriment of human capital**, generating major disturbances which have manifested for a long time through **economic stagnation, social inequality and environmental damage** (R. Lopez, 2003).

The debate between researchers in the economic field about the best way of measuring the effects of education on macroeconomic performance continues. Nearly all the individual studies made by different countries highlight the **benefit of education** on economic growth, but in what concerns the comparative researches made, **the results are not as clear** (see also C. Papagiorgiou and V. Chmelarova, 2005). The balance is inclined, however, in this situation too, for the sustainers of **positive effects of investment** in education on macroeconomic indicators.

The main theme for discussion of researchers is related to the determination of those issues or **areas of education that have impact on economic growth**. Some studies conclude that the **average level of education** of the citizens of a country is in touch with the level of economic growth, other classify the **forms of education** (see also G. Bertocchi and M. Spagat, 2004; P. E. Petrakis and D. Stamatakis, 2002) **or people** (see also J. Feyrer, 2007) depending on the importance that each one has on growth, and a third category concluded that not the average level of education but **the growth registered by this level** determine the level of economical growth. Another research group, fewer in number but well-known, established a negative link or the lack of it between **increasing levels of education and economic growth**. We take into consideration in this case, a recent study which concludes that education not in the sense of a form of graduate education, but in the sense of the knowledge base of individuals is closely linked with economic growth of various countries (E. A. Hanushek and L. Woessmann, 2008). In conclusion, even if there is not a consensus among researchers regarding the extent to which education affects economic growth, most believe that **there is a direct link between investment in education and economic growth**. Confusion arises, therefore, not when the question arises if there is a connection between education and growth, but largely **when it comes to choose data and methodology used to measure the costs and benefits (especially benefits) of social education and to measure the intensity of this connection**.

The importance of determining costs, benefits and rates of return on the investment in education is emphasized in recent years also by the fact that their calculation has become a focusing point of **many governments and international economic organizations**. We take into consideration with regard to this problem, by way of example, the Organization for Economic Cooperation and Development (OECD) for which the rates of return of investment in education are key indicators and the governments of Great Britain and Australia whose reforms in education are based on **studies on the economic implications of education, funded by these states**. Unfortunately, for our country, **there are not any similar researches** available in the mainstream publications in the field that the policy makers can consider as a base for their decisions taken in the education field.

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